



HEALTH AFFAIRS

THE ASSISTANT SECRETARY OF DEFENSE

WASHINGTON, D. C. 20301-1200

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MEMORANDUM FOR ASSISTANT SECRETARY OF THE ARMY (M&RA)  
ASSISTANT SECRETARY OF THE NAVY (M&RA)  
ASSISTANT SECRETARY OF THE AIR FORCE (SAF/MR)  
DIRECTOR, ARMED FORCES INSTITUTE OF PATHOLOGY

SUBJECT: Operation Iraqi Freedom Depleted Uranium Bioassay Results – Fourth  
Semiannual Report and Request for Data Submission

My July 28, 2005 memorandum, "Operation Iraqi Freedom Depleted Uranium Bioassay Results and Semiannual Data Submission," requested the semiannual submission of the Services' Operation Iraqi Freedom (OIF)-related Depleted Uranium (DU) bioassay results. The attachments summarize the data for the fourth reporting period (April 1, 2005 to September 30, 2005) and the cumulative DU urine bioassay results obtained since June 1, 2003.

The next semiannual submittal from the Services is due May 1 to the Deployment Health Support Directorate. Please include results from the reporting period October 1, 2005 to March 31, 2006, and your cumulative totals from June 1, 2003 to March 31, 2006. In addition, I request that the U.S. Army Center for Health Promotion and Preventive Medicine and the Armed Forces Institute of Pathology report their analytic results for the metallic elements identified in any metal fragments removed from OIF personnel. These data will permit assessment of any long-term hazards that may be associated with specific metal fragments.

During this latest reporting period, 152 additional personnel received DU urine bioassays. One individual (Navy/Marine) had elevated levels of DU in his urine. A level of exposure could not be assigned for 35 Army personnel and one Navy/Marine member because of incomplete or missing DU exposure assessment forms. I request the Army and Navy continue their efforts to complete exposure assessment forms for all of the uncategorized Service members and obtain confirmatory samples as required under the DU Urine Bioassay Policy. Please report on your efforts in the next semiannual progress report.

As of September 30, 2005, a total of 2,122 U.S. personnel had undergone a DU urine bioassay. No one had total uranium levels or DU levels that caused, or are expected to cause, adverse health effects. Initial total urine uranium levels of 186 Service members were above the 95<sup>th</sup> percentile of the normal dietary uranium level of the U.S. civilian population. Of these 186, subsequent testing confirmed elevated levels of natural uranium in only 12 members. Eight had indications of DU in their urine, all of whom

either had DU fragments removed or were suspected to have retained DU fragments at the time of testing.

Please submit your reports to Colonel George Johnson, Deployment Health Support Directorate, [George.Johnson@deploymenthealth.osd.mil](mailto:George.Johnson@deploymenthealth.osd.mil), or (703) 578-8523. Additional information and clinical guidance on this program is available on the Department of Defense Deployment Health Clinical Center website, [www.pdhealth.mil](http://www.pdhealth.mil).

  
William Winkenwerder, Jr., MD

Attachments:

As stated

cc:

Assistant Secretary of Defense (Reserve Affairs)  
Surgeon General of the Army  
Surgeon General of the Navy  
Surgeon General of the Air Force  
Director, Joint Staff  
Assistant Deputy Under Secretary of Defense (ESOH)  
Director, Health and Safety, USCG  
Director, DoD Deployment Health Clinical Center  
Under Secretary for Health, Department of Veterans Affairs  
Baltimore VA Medical Center (Dr. Melissa McDiarmid)  
Commander, US Army Center for Health  
Promotion and Preventive Medicine

**Service Summary of Operation Iraqi Freedom Depleted Uranium Bioassay Results**  
**Fourth Semi-Annual Report**  
**April 1, 2005 – September 30, 2005**

<b>Level</b>	<b>Army</b>	<b>Navy/ Marine</b>	<b>Air Force</b>	<b>TOTAL</b>	<b>Elevated Total Uranium</b>	<b>Detectable DU in Urine</b>	<b>Retained Fragments or Fragment- Type Injury</b>
<b>I</b>	14	7	0	<b>21</b>	1	1	4 <sup>a</sup>
<b>II</b>	46	16 <sup>b</sup>	0	<b>62</b>	0	0	0
<b>III</b>	12	21 <sup>c</sup>	0	<b>33</b>	0	0	0
<b>Uncat</b>	35	1 <sup>d</sup>	0	<b>36</b>	0	0	1
<b>TOTAL</b>	<b>107</b>	<b>45</b>	<b>0</b>	<b>152</b>	<b>1</b>	<b>1</b>	<b>5</b>

a The individual reported with DU in his urine is included in this category

b Urine bioassay results for 6 of the 16 Level II Navy/Marine Service members are pending, undetermined, or unknown

c Urine bioassay results for 9 of the 21 Level III Navy/Marine Service members are pending, undetermined or unknown

d Urine bioassay result for the Uncategorized Navy/Marine Service member is pending, undetermined or unknown

**Service Summary of Operation Iraqi Freedom Depleted Uranium Bioassay Results**  
**Fourth Cumulative Report**  
**June 1, 2003 – September 30, 2005**

<b>Exposure Level</b>	<b>Army</b>	<b>Navy/ Marine</b>	<b>Air Force</b>	<b>TOTAL</b>	<b>Elevated Total Uranium</b>	<b>Detectable DU in Urine</b>	<b>Retained Fragments or Fragment-Type Injury</b>
<b>I</b>	189	47	2	<b>238</b>	8	7 <sup>a</sup>	16
<b>II</b>	269	220	7	<b>496</b>	13	0	1 <sup>b</sup>
<b>III</b>	199	43	7	<b>249<sup>c</sup></b>	2	0	6 <sup>d</sup>
<b>Uncat</b>	1128	11	0	<b>1139<sup>e</sup></b>	113	1 <sup>f</sup>	29
<b>TOTAL</b>	<b>1785</b>	<b>321</b>	<b>16</b>	<b>2122</b>	<b>186<sup>g</sup></b>	<b>8</b>	<b>52</b>

a Includes one AF member who had a small DU fragment removed from his eyelid. His urine had detectable levels of DU at the time of the fragment removal, but was negative for DU on the confirmatory test several months later. One soldier had DU detected on his initial test; confirmatory test is pending.

b This individual entered a DU-impacted vehicle and got two "splinters," which were removed and analyzed; they did not contain DU.

c Includes only those Level III (incidentally exposed) personnel who received a bioassay. Bioassays are optional for Level III personnel.

d Fragments removed from Level III (incidentally exposed) personnel have been analyzed for many reasons; for instance, to ensure that fragments generated from an improvised explosive device did not contain DU.

e Uncategorized exposures consist of those individuals who were tested but had incomplete or missing DU exposure assessment forms.

f This individual has separated from the Army. He submitted a spot urine sample (rather than a 24-hour sample) and no exposure questionnaire. The Army is still attempting to contact the individual to complete the exposure assessment.

g Includes individuals with preliminary or confirmed levels above uranium of 50 ng/g creatinine or 50 ng/L urine. Only 12 individuals have confirmed elevated levels, and only one of these individuals has detectable levels of DU.